

**REMARKS**

After entry of the present Amendment, claims 1 and 4-14 are pending in the application in independent form. Claim 1 is currently amended to incorporate the subject matter of claims 2 and 3; thus, claims 2 and 3 are cancelled. Support for this amendment can be found in at least Paragraph [0021] of the subject application as published. Claims 4-14 stand withdrawn. Though claims 4 and 6 are withdrawn, each is currently amended for purposes of clarity, as described below.

As a preliminary matter, the Examiner contends that Applicants filed amendments on 6/24/2005, 7/14/2008, and 11/07/2008. The Applicants respectfully point out that the response of 11/07/2008 was merely a response to a restriction requirement and not an amendment, as evidenced by the statement “no claims have been amended herein” which was included in the response. In addition, the Applicants respectfully point out that the single bracket with which the Examiner has taken issue existed in the claims at the time of filing, and was not inserted via any preliminary amendment. Further, the Examiner has directed the Applicants to 37 CFR 1.121(c) for instructions regarding compliant claim amendments. 37 CFR 1.121(c) states that “[t]he text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters.” Therefore, the Applicants use of a single bracket around each respective “wherein clause” in claims 1, 3, 4 and 6 does not indicate deleted subject matter from these claims because it was a single bracket and

encompassed much greater than five characters. However, each of these claims has been amended to remove these single brackets.

As an additional preliminary matter, the Examiner contends that the moiety Y<sup>8</sup> of copolymer B of claim 4 is undefined. The Applicants assume the Examiner is referencing the moiety Y<sup>8</sup> of copolymer B of claim 3, as claim 4 is directed toward a silicone compound (C) and not copolymer B. The Applicants respectfully submit that the Examiner has misinterpreted the moiety Y<sup>3</sup>, which is defined in claim 3, as Y<sup>8</sup> due to “blurriness” in the structure of copolymer (B). Thus, the Applicants believe that all moieties are properly defined.

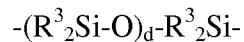
Claims 1-3 stand rejected as being unpatentable over U.S. Pat. No. 6,287,891 to Rautschek (the ‘891 patent). Specifically, the Examiner contends that the ‘891 patent discloses a generic formula IV which teaches block copolymer A as claimed in the present application. Generic formula IV is the following:



in which n is greater than or equal to 1, preferably 1-20, and A has the general formula:



where R<sup>1</sup> independently of one another is either hydrogen, alkyl, aralkyl, aryl, or an R<sup>2</sup>-C(O)- radical, and R<sup>2</sup> is a substituted or unsubstituted alkyl radical having from 1 to 8 carbon atoms, m is an integer between 3 and 8, and a, b, and c independently of one another are integers between 0 and 200, with the proviso that the sum (a+b+c) is from 2 to 300. In addition, B has the general formula:

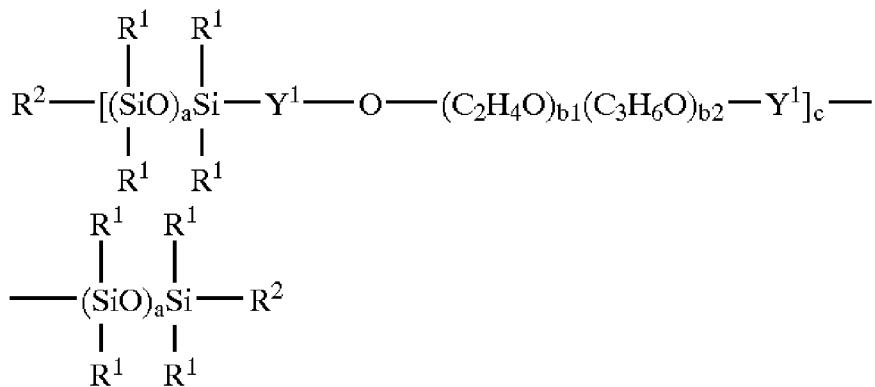


where  $R^3$  independently of one another are substituted and/or unsubstituted, saturated and/or unsaturated hydrocarbon radicals having from 1 to 20 carbon atoms, and  $d$  is an integer between 1 and 400. Further, C has the general formula:

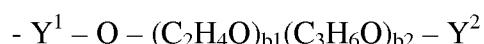


with each subscript being defined above.

In contrast, the present application claims a block copolymer (A) represented by the following general formula:



wherein  $R^1$  independently designates univalent hydrocarbon groups free of aliphatic unsaturation, hydroxyl groups, or alkoxy groups;  $Y^1$  designates a bivalent organic group;  $R^2$  independently designates hydrogen atoms, hydroxyl groups, substituted or unsubstituted univalent hydrocarbon groups, alkoxy groups, or groups represented by the following formula:



wherein  $Y^2$  is a hydrogen atom or a substituted or unsubstituted univalent hydrocarbon group); "a" is 1 or a greater integer; "bl" is 1 or a greater integer; "b2" is 0, 1 or a greater integer; and "c" is 1 or a greater integer.

Though the Applicant appreciates that the Examiner's rejection is a § 103 obviousness rejection, the Applicant points out that the Examiner has stated that the claimed block copolymer (A) is taught by the '891 patent. To arrive at this conclusion, the Examiner has set forth a complex selection of optional moieties and particular substituents from the potentially infinite number of possibilities disclosed in the general formula of the '891 patent.

However, as the Examiner is aware, a genus does not always anticipate a claim to a species within the genus. MPEP § 2131.02. In particular, "[w]hen the compound is not specifically named, but instead it is necessary to select portions of teaching within a reference and combine them, e.g. select various substituents from a list of alternatives given for a placement at specific sites on a generic chemical formula to arrive at a specific composition, anticipation can only be found if the classes of substituents are sufficiently limited or well delineated." (emphasis added) *Id.* (citing *Ex parte A*, 17 USPQ2d 1716 (Bd. Pat. App. & Inter. 1990)). This is particularly applicable to the instant situation, because block copolymer (A) of the subject invention is neither specifically named nor disclosed in the '891 patent. Therefore, for a person having ordinary skill in the art to arrive at block copolymer (A) of the subject invention, he would have to select very specific substituents from the list of alternatives, as well as exclude particular moieties, such as  $[CH_2CH(CH_2CH_3)O]_c$ .

This is unlikely because the genus disclosed by the ‘891 patent encompasses thousands of alternative block copolymers due to embodiments which include or exclude the moieties  $[CH_2CH_2O]_a$ ,  $[CH_2CH(CH_3)O]_b$ , and  $[CH_2CH(CH_2CH_3)O]_c$  as well as embodiments which vary each substituent, such as  $R^1$ ,  $R^2$  and  $R^3$ .

In *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962), the prior art disclosed a generic chemical formula "wherein X, Y, Z, P, and R - represent either hydrogen or alkyl radicals, R a side chain containing an OH group." The Applicants in that case claimed a species within the genus disclosed in the prior art, and the court held that because the generic formula encompassed a vast number and perhaps even an infinite number of compounds, the Applicants' species was not anticipated by the genus disclosed in the prior art.

This is analogous to the instant situation, in which the ‘891 patent discloses an even broader genus than the genus of *In re Petering*. More specifically, the ‘891 patent merely discloses a genus in which  $R^1$  independently of one another is either hydrogen, alkyl, aralkyl, aryl, or an  $R^2\text{-}C(O)\text{-}$  radical, and  $R^2$  is a substituted or unsubstituted alkyl radical having from 1 to 8 carbon atoms, m is an integer between 3 and 8, and a, b, and c independently of one another are integers between 0 and 200, with the proviso that the sum (a+b+c) is from 2 to 300,  $R^3$  independently of one another are substituted and/or unsubstituted, saturated and/or unsaturated hydrocarbon radicals having from 1 to 20 carbon atoms, and d is an integer between 1 and 400. Thus, the genus of the ‘891 patent clearly encompasses even more possibilities than the generic chemical formula of the prior art in *In re Petering* due to the number of suitable substituents as well as optional moieties of the general formula disclosed

in the ‘891 patent. In particular, the prior art in *In re Petering* included five functional groups which could be selected from only three types of substituents; however, in the genus of the ‘891 patent, there are three optional moieties, as well as numerous suitable substituents for each substituent of the general formula disclosed, especially in view of the language “selected from substituted and/or unsubstituted, saturated and/or unsaturated hydrocarbon radicals” which encompasses an infinite number of substituents in itself, even when viewed separately from the other optional moieties and substituents disclosed.

As the Examiner is also aware, a species is only anticipated “[i]f one of ordinary skill in the art is able to ‘at once envisage’ the specific compound within the generic chemical formula . . .” MPEP § 2131.02 (citing *Ex parte A*). Further, “[o]ne of ordinary skill in the art must be able to draw the structural formula or write the name of each of the compounds included in the generic formula before any of the compounds can be ‘at once envisaged.’” (emphasis added) *Id.* Because of the infinite number of suitable substituents and optional moieties disclosed by the general formula of the ‘891 patent, it is clear that block copolymer (A) of the subject invention would not be “at once envisaged” by one of ordinary skill in the art. Further, several embodiments of block copolymer (A) of the subject invention are not disclosed by the general formula of the ‘891 patent, further evidencing the fact that one of skill in the art would not be able to at once envisage block copolymer (A) of the subject invention upon reviewing the general formula of the ‘891 patent. For example, the Examiner correlates the R<sup>2</sup> substituent of block copolymer (A) to the A moiety of the general formula of the ‘891 patent. However, the R<sup>2</sup> substituent of block copolymer (A) can be

independently selected from hydrogen atoms, hydroxyl groups, univalent hydrocarbon groups, and alkoxy groups; none of these groups are disclosed or taught by the ‘891 patent. Rather, the only suitable A moiety of the general formula of the ‘891 patent is: R<sup>1</sup>-O-[CH<sub>2</sub>CH<sub>2</sub>O]<sub>a</sub>[CH<sub>2</sub>CH(CH<sub>3</sub>)O]<sub>b</sub>[CH<sub>2</sub>CH(CH<sub>2</sub>CH<sub>3</sub>)O]<sub>c</sub>-(C<sub>m</sub>H<sub>2m</sub>)-.

Furthermore, with respect to the obviousness of a species claimed within a genus disclosed in the prior art, “[w]hen a single prior art reference which discloses a genus encompassing the claimed species or subgenus but does not expressly disclose the particular claimed species or subgenus, [the Examiner] should attempt to find additional prior art to show that the differences between the prior art primary reference and the claimed invention as a whole would have been obvious.” MPEP § 2144.08. The Examiner has not cited any additional references which show that differences between the ‘891 patent, i.e., the primary reference, and the invention claimed in the subject application are obvious. Further, “[t]he fact that a claimed species or subgenus is encompassed by a prior art genus is not sufficient by itself to establish a prima facie case of obviousness.” (emphasis added) *Id.* (citing *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994)). Therefore, the general formula of the ‘891 patent by itself does not establish a prima facie case of obviousness with respect to the species of block copolymer (A) claimed in the subject application.

The Examiner is respectfully reminded that to establish a prima facie case of obviousness, “[t]he section 103 requirement of unobviousness is no different in chemical cases than with respect to other categories of patentable inventions.” *In re Papesch*, 315 F.2d 381, 385, 137 USPQ 43, 47 (CCPA 1963). The Examiner has not set forth a prima facie case

of obviousness. In particular, where the prior art has disclosed a genus, “Office personnel should make findings as to:

- (A) the structure of the disclosed prior art genus and that of any expressly described species or subgenus within the genus;
- (B) any physical or chemical properties and utilities disclosed for the genus, as well as any suggested limitations on the usefulness of the genus, and any problems alleged to be addressed by the genus;
- (C) the predictability of the technology; and
- (D) the number of species encompassed by the genus taking into consideration all of the variables possible.” (emphasis added) MPEP § 2144.08.

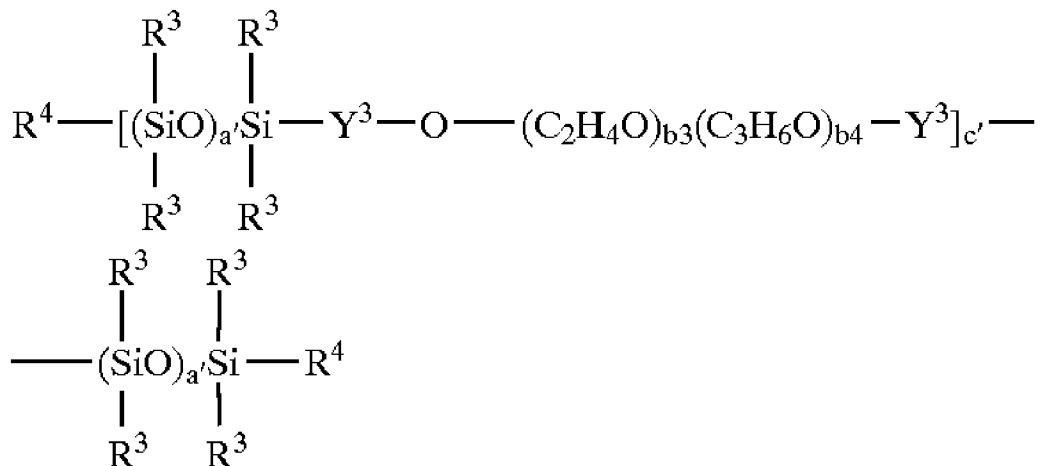
Findings (A) and (D) are already described above and clearly weigh in favor of block copolymer (A), as claimed in the subject invention, as being nonobvious over the genus disclosed in the ‘891 patent due to the fact the genus encompasses an infinite number of species and block copolymer (A) claimed in the subject invention is not expressly described or disclosed in the ‘891 patent.

With respect to finding (B), the Examiner is reminded that “[i]t is the properties and utilities that provide real world motivation for a person of ordinary skill to make species structurally similar to those in the prior art.” *Dillon*, 919 F.2d at 697, 16 USPQ2d at 1905; *In re Stemniski*, 444 F.2d 581, 586, 170 USPQ 343, 348 (CCPA 1971). Thus, “lack of any known useful properties weighs against a finding of motivation to make or select a species or subgenus.” *In re Albrecht*, 514 F.2d 1389, 1392, 1395-96, 185 USPQ 585, 587, 590 (CCPA

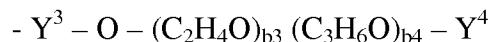
1975); *Stemniski*, 444 F.2d at 586, 170 USPQ at 348 (close structural similarity alone is not sufficient to create a *prima facie* case of obviousness when the reference compounds lack utility, and thus there is no motivation to make related compounds.). Notably, the only utility disclosed in the ‘891 patent for the general formula relates to antifoams, i.e., foam stabilizers. Conversely, the subject application claims a composition for hair. Therefore, there was a lack of utility of the general formula of the ‘891 patent with respect to a composition for hair treatment, which further evidences the nonobviousness of block copolymer (A) and weighs in favor of the Applicant in view of finding (B) above with respect to nonobviousness of block copolymer (A). In addition, one of skill in the art would have no reason to predict that a foam stabilizer would have excellent properties as a composition for hair, which also weighs in favor of the Applicants in view of finding (C) above. As such, there is no motivation to select the species of block copolymer (A) claimed in the subject application, and the Examiner has not set forth a *prima facie* case of obviousness.

The Examiner also contends that block copolymer (B) of the subject invention is taught by the same generic formula of the ‘891 patent as block copolymer (A). Notably, claim 1 of the subject application is currently amended to further include block copolymer (B), which was previously claimed in dependent claim 3. Block copolymer (B), as claimed in the subject application, is similar to block copolymer (A) with notable differences with respect to the subscripts for each moiety in block copolymer (B), which include upper limitations not present in block copolymer (A). Notably, the substituents of block copolymer

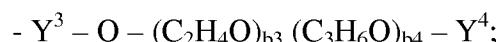
(B) are independently selected from the same substituents of block copolymer (A). Block copolymer (B) is represented by the following general formula:



wherein  $\text{R}^3$  independently designates substituted or unsubstituted univalent hydrocarbon groups or groups of the following formula:

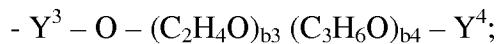


wherein  $\text{Y}^3$ ,  $b3$ , and  $b4$  are defined below,  $\text{Y}^4$  designates hydrogen atoms or a substituted or unsubstituted univalent hydrocarbon group;  $\text{Y}^3$  designates a bivalent organic group;  $\text{R}^4$  independently designates hydrogen atoms, hydroxyl groups, substituted or unsubstituted univalent hydrocarbon groups, alkoxy groups, or groups represented by the following formula:



" $a'$ " is an integer within the range of 1 to 1350; " $b3$ " and " $b4$ " are, respectively, integers within the range of 0 to 220 (but  $b3$  and  $b4$  cannot be both 0); " $c'$ " is an integer within the

range of 0 to 50; when c' is 0, at least one of the groups designated by R<sup>3</sup> or R<sup>4</sup> is represented by the formula:



Thus, the arguments set forth above relative to nonobviousness of block copolymer (A) are equally applicable to block copolymer (B) but are not repeated here for purposes of efficiency. Stated differently, block copolymer (B) is also merely one species which may be disclosed by the general formula of the ‘891 patent. The Applicants submit that block copolymer (B) is nonobvious over the general formula disclosed by the ‘891 patent for the same reasons that block copolymer (A) is nonobvious in view of the same general formula.

Further, currently amended claim 1 specifies that each of block copolymer (A) and block copolymer (B) is present in the composition within the range of 0.01 to 10 mass % (per total weight of the composition as a reference). The Examiner contends that “[a] person of ordinary skill in the art would have had a reasonable expectation of success in combining the copolymers in a composition because [the ‘891 patent] teaches that multiple copolymers may be used in antifoam compositions.” (emphasis added). However, “rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). The Examiner has failed to set forth any articulated reasoning with some rational underpinning as to why one of skill in the art would select a combination of copolymers (A) and (B), as claimed in the subject

application, to form a composition for hair in view of the genus disclosed for foam stabilizers in the '891 patent.

When making a determination of obviousness, the focus should be on what a person of ordinary skill in the pertinent art would have known at the time of the invention, and on what such a person would have reasonably expected to have been able to do in view of that knowledge. See MPEP 2141(II). The Applicants point out that the '891 patent does not teach or otherwise disclose a composition for hair comprising block copolymer (A) or block copolymer (B), let alone a combination of block copolymer (A) and block copolymer (B). Because the '891 patent is silent to utility relative to compositions comprising such copolymers for treating hair, either individually or in combination, there is no reason whatsoever that one of skill in the art, when forming a composition for hair, would turn to the '891 patent, and select specific substituents and/or optional moieties from the general formula disclosed to form either block copolymer (A) or block copolymer (B). Moreover, there is no reason whatsoever that one of skill in the art would select a combination of block copolymers (A) and (B) for use in such a composition, as claimed in the subject application. Thus, the Examiner has not established a proper *prima facie* case of obviousness.

In view of the foregoing, the Applicants respectfully submit that claim 1 is both novel and non-obvious over the prior art including over the '891 patent. As such, the Applicants submit that the claims are in condition for allowance and respectfully request such allowance. While it is believed that no additional fees are presently due, the Commissioner is authorized

to charge the Deposit Account No. 08-2789, in the name of Howard & Howard Attorneys PLLC for any fees or credit the account for any overpayment.

**Respectfully submitted,**

**HOWARD & HOWARD ATTORNEYS PLLC**

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Date

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